

Standards and Calibration Laboratory

Internal Audits

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12/04/98

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INTERNAL AUDITS

1.0 PURPOSE

This procedure describes the internal audit program used by the Standards and Calibration Laboratory (S&CL). "Internal audit" means an audit that is part of a continuing self-examination process conducted by the S&CL. Audits that are not part of the internal audit program may be imposed at any time; the results of such audits will be treated in the same way as the results of internal audits. The internal audit program consists of several periodic audits and a number of continuing process checks. Its purpose is to assure that the following goals are met:

1.1 Documentation Goal

The Planning Documents that define S&CL operations are complete, correct, and meet the requirements of the defining national standards specified in SCL-PD-0001 *Quality Assurance Program Plan*.

1.2 Conformance Goal

The technical operations and documentation produced by the S&CL conform to the provisions stated in the Planning Documents.

1.3 Accuracy Goal

The technical operations of the S&CL produce correct measurement results.

2.0 DESCRIPTION OF AUDITS

2.1 National Voluntary Laboratory Accreditation Program (NVLAP) Audits

Accreditation audits are provided by the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology. NVLAP audits consist of a review of the compliance of S&CL Planning Documents to the requirements of NIST Handbook 150, a review of practices within the S&CL, and a thorough review of the technical competence of those areas chosen for accreditation, including practices, procedures, and personnel competence. NVLAP audits test the Documentation, Conformance, and Accuracy goals.

2.2 Department of Energy Audits

Audits are conducted every two years by the Sandia National Laboratories Primary Standards Laboratory (PSL) on behalf of the United States Department of Energy (DOE). DOE audits consist of a review of the compliance of S&CL Planning Documents to the requirements of ANSI Z540; a review of calibration records with emphasis on documentation of traceability; a thorough review of technical competence in several technical areas, including practices, procedures, and personnel competence; proficiency tests that are completed by the S&CL during the DOE audit; and blind audits in which a calibrated item is chosen at random and retested by the PSL. DOE audits test the

Documentation, Conformance, and Accuracy goals.

2.3 Quality Assurance Group Audits

Audits are conducted every two years by the Los Alamos National Laboratory Quality Assurance Group. Quality Group audits consist of a review of the compliance of S&CL Planning Documents to the requirements of ANSI/ASME NQA-1-1994 and a review of the conformance of S&CL operations to the requirements of the Planning Documents. These audits test the Documentation and Conformance goals.

2.4 Management Audit

Planning Documents may be updated at any time that a need for revision is identified. In addition, each Planning Document is reviewed annually by the team leader on the anniversary date of its issue. The purpose of this review is to ensure that the S&CL quality program is based upon current and appropriate national or consensus standards; that the Planning Documents are in compliance with these standards; and that the Planning Documents clearly define desired S&CL operating procedures.

3.0 PROCESS CHECKS

3.1 Statistical Techniques

When possible, important S&CL capabilities are continuously monitored by means of control charts or other statistical techniques. The following areas are currently monitored by statistical means:

- Frequency (through the NIST frequency measurement analysis system)
- Direct Voltage (through control charts)
- Mass (through a measurement assurance program)

3.2 Interlaboratory Comparisons

When available, the S&CL participates in interlaboratory comparisons involving measurements of interest. Most ongoing interlaboratory comparison programs are located through the National Conference of Standards Laboratories, the DOE Primary Standards Laboratory, or through personal contacts at other facilities. In certain cases of great interest to the S&CL where no ongoing interlaboratory comparison programs can be located, an individual comparison with another laboratory may be arranged or the S&CL may volunteer to serve as the pivot lab for an interlaboratory comparison program.

3.3 Standard Reference Materials

When available, NIST-certified standard reference materials (SRM's) are maintained and used as a check on process accuracy. The following area currently maintains an SRM for use as a process check:

- Density (silicon density SRM)

4.0 REVIEW, ACTION, AND DOCUMENTATION

4.1 Audits

Audit results are reviewed by the team leader, who develops and documents an action plan to address any deficiencies noted. Upon completion of all actions, the closure of the audit is also documented in writing by the team leader. Audit reports and associated documentation are considered to be controlled records and are maintained in accordance with SCL-PD-0007 *Records*.

4.2 Process Checks

Process checks are reviewed by the appropriate technician and by the unit leader for the section. Action is taken if the check indicates that there may be a problem. Control charts and other statistical measures are usually documented through incorporation into a calibration report for the item being monitored. Interlaboratory comparisons are documented as Special Test Reports.